INTRODUCTION

"Arrojadites are the most chemically complex of primary pegmatite phosphates, and no less than sixteen elements may play a significant role." This sentence introduces the discussion given by Moore and Ito (1979) of a chemical survey of available analyses, i.e., those restricted to pegmatitic material. Indeed, arrojadite-group minerals have been considered as confined to granitic pegmatites for a century, until the discoveries of the 1970s in northwestern Yukon Territory, Canada. In these now classic occurrences, crystals of exceptional quality occur in hydrothermal veins cross cutting shale and ironstone of very low metamorphic grade (Robinson et al. 1992). This finding and more recent ones in greenschist- to amphibolite-facies metamorphic quartzites [by Demartin et al. (1996) in the Central Alps and by one of us in south-central Sweden] indicate that the formation conditions of arrojadite-group minerals may be much more diverse than anticipated, as also suggested by the low-temperature (450 °C) synthesis of a ferrian arrojadite phase (Yakubovich et al. 1986). As a matter of fact, these new findings also reveal large compositional variations, which may, or may not, be related to the broad range of pressures and temperatures of formation now recognized for this mineral. Our analytical and structural study of the Swedish and Canadian samples prompted a re-investigation of classic material. Together with new structural data presented in Part I (Cámara et al. 2006), the results imply complete reconsideration of the crystal chemistry of the arrojadite group; on this basis, we propose in the following a consistent nomenclature scheme, the application of which led to the denomination or re-denomination of several new members.

HISTORICAL: ARROJADITE, DICKINSONITE, AND SIGISMUNDITE

The name dickinsonite had been proposed initially to define a phosphate mineral containing Mn, Fe, and Na in the Branchville pegmatite, Fairfield Co., Connecticut (Brush and Dana 1878), and the name arrojadite was proposed by Guimarães (1924, republished by Guimarães 1942, with minor correction of the